



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/779,865	02/18/2004	John A. Lawton	102456-40308370	6209

43569 7590 03/17/2006

MAYER, BROWN, ROWE & MAW LLP
1909 K STREET, N.W.
WASHINGTON, DC 20006

EXAMINER

HAMILTON, CYNTHIA

ART UNIT

PAPER NUMBER

1752

DATE MAILED: 03/17/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/779,865	LAWTON ET AL.	
	Examiner	Art Unit	
	Cynthia Hamilton	1752	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 12/19/2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date <u>12/19/2005</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. Applicant's claim for the benefit of a prior-filed application under 35 U.S.C. 119(e) or under 35 U.S.C. 120, 121, or 365(c) is acknowledged. Applicant has not complied with one or more conditions for receiving the benefit of an earlier filing date under 35 U.S.C.120 as set forth in the Response to Petition mailed March 9, 2006 from The USPTO.

The effective filing date for all claims in this application as of the date of this Office Action is February 18, 2004. Rejections that follow are based upon this established date.

2. The examiner notes that there is no support for the upper limit of 3.8 in "wherein a ratio of epoxy equivalents to hydroxy equivalents in the composition is in the range of from 1.5 to 3.8", in U.S. application Serial No. 09/113,271. The nearest to this limit is found on page 31 of U.S. application Serial No. 09/113,271 wherein the highest upper limit is about 2.5 found on line 25. The raw limit to "wherein a ratio of epoxy equivalents to hydroxy equivalents in the composition is in the range of from 1.5 to 3.8" is found in U.S. application Serial No. 09/538,940 on page 31 of the original specification. Thus, the oldest possible filing date applicants might be able to establish for the instant claims is March 31, 2000 if successful in obtaining continuity to U.S. application SN 09/948, 713.

3. The information disclosure statement filed on December 19, 2005 does not fully comply with the requirements of 37 CFR 1.98(b) because: Applicants have failed to present copies of the non US patent documents cited or, in the alternative, identify the APPLICATION, i.e. not the Patent Number, of an earlier effective filing date under 35 U.S.C. 120. Since the submission appears to be *bona fide*, applicant is given **ONE (1) MONTH** from the date of this notice to supply the above mentioned omissions or corrections in the information disclosure statement.

Art Unit: 1752

NO EXTENSION OF THIS TIME LIMIT MAY BE GRANTED UNDER EITHER 37 CFR 1.136(a) OR (b). Failure to timely comply with this notice will result in the above mentioned information disclosure statement being placed in the application file with the noncomplying information **not** being considered. See 37 CFR 1.97(i).

4. The amendment filed December 19, 2005 is objected to under 35 U.S.C. 132(a) because it introduces new matter into the disclosure. 35 U.S.C. 132(a) states that no amendment shall introduce new matter into the disclosure of the invention. The added material that is not supported by the original disclosure is as follows: The incorporation by reference in its entirety of U.S. Application Serial No. 09/948,713. This was added after the filing date of this application, thus the addition of new matter. When a benefit claim under 35 U.S.C. 120 is submitted after the filing of an application, the reference to the prior application cannot include an incorporation by reference statement of the prior application. See *Dart Industries v. Banner*, 636 F.2d 684, 207 USPQ 273 (C.A.D.C. 1980). Note MPEP 201.06(c) and 608.04(b).

Applicant is required to cancel the new matter in the reply to this Office Action.

5. The examiner notes that applicants have amended claims to exclude all physical properties dependent upon cured material obtained from the photosensitive composition in the claim language. Applicants have added a new limit to the composition heretofore not considered in this application, i.e. "wherein a ratio of epoxy equivalents to hydroxy equivalents in the composition is in the range of from 1.5 to 3.8." Thus, the claims have been amended to the extent that all prior art must be reconsidered in view of this limitation. Such reconsideration is required because of applicant's amendment. Thus, art cited in the following rejections based

Art Unit: 1752

upon the removal of the old limits and required for the insertion of the new limits will not stop the finality of this Office Action.

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

7. Claims 1-20 are rejected under 35 U.S.C. 102(b or optionally a) as being anticipated by Lawton (WO 00/03300) with a publication date of January 20, 2000 as evidenced by RN 4687-94-9. Lawton is the PCT publication related to US application Serial No. 09/113,271.

The instant claims are not fully supported by the original application Serial No. 09/113,271 under 35 USC 112, first paragraph. The examiner notes that there is no support for the upper limit of 3.8 in “wherein a ratio of epoxy equivalents to hydroxy equivalents in the composition is in the range of from 1.5 to 3.8”, in U.S. application Serial No. 09/113,271. The nearest to this limit is found on page 31 of U.S. application Serial No. 09/113,271 wherein the highest upper limit is about 2.5 found on line 25. The raw limit to “wherein a ratio of epoxy equivalents to hydroxy equivalents in the composition is in the range of from 1.5 to 3.8” is found in U.S. application Serial No. 09/538,940 on page 31 of the original specification. Thus, the oldest possible filing date applicants might be able to establish for the instant claims is March 31, 2000 if successful in obtaining continuity to U.S. application SN 09/948,713. Thus, the examiner has

Art Unit: 1752

rejected under a and b of 35 USC 102 since the inventive entity of Lawton (WO 00/03300) is not the same as the instant application.

With respect to instant claims 1-20, Examples 1-6 of Lawton anticipate the instant compositions and articles as set forth in the Table bridging pages 34-35 in Lawton. "A generic claim cannot be allowed to an applicant if the prior art discloses a species falling within the claimed genus." The species in that case will anticipate the genus. *In re Slayter*, 276 F.2d 408, 411, 125 USPQ 345, 347 (CCPA 1960); *In re Gosteli*, 872 F.2d 1008, 10 USPQ2d 1614 (Fed. Cir. 1989). "[W]hen, as by a recitation of ranges or otherwise, a claim covers several compositions, the claim is 'anticipated' if *one* of them is in the prior art." *Titanium Metals Corp. v. Banner*, 778 F.2d 775, 227 USPQ 773 (Fed. Cir. 1985) (citing *In re Petering*, 301 F.2d 676, 682, 133 USPQ 275, 280 (CCPA 1962)) (emphasis in original) (Claims to titanium (Ti) alloy with 0.6-0.9% nickel (Ni) and 0.2-0.4% molybdenum (Mo) were held anticipated by a graph in a Russian article on Ti-Mo-Ni alloys because the graph contained an actual data point corresponding to a Ti alloy containing 0.25% Mo and 0.75% Ni and this composition was within the claimed range of compositions In this instance a species within the range of compositions claimed by applicants found in Lawton et al in each of the compositions of Examples 1-6 of Lawton as well as the two comparison compositions of Lawton reading on some of the claimed invention. The composition of these examples of Lawton are set forth on pages 34-35 and the abbreviations being set forth on the bottom of page 32 and top of page 33, with "epoxy" being identified as "3,4-epoxycyclohexylmethyl-3,4-epoxycyclohexane carboxylate", polyTHF as polytetrahydrofuran linear chain (1000 mw), FRI-1 being 1-

Art Unit: 1752

hydroxycyclohexyl phenyl ketone, FRI-2 being 2-hydroxy-1 {4-(2hydroxyethoxy)phenyl} -2-methyl-1-propanone, FRI-3 being 2,2-dimethoxy-2-phenylacetophenone, Ebecryl being the acrylate ester of bisphenol-A epoxy that is further identified as Ebecryl 3700 which is evidenced by RN 4687-94-9 to be bisphenol A diglycidyl ether diacrylate, CHDM being 1, 4 - cyclohexane dimethanol diacrylate ester with CHDM and EBECRYL making up instant B and CatI being a mixed triarylsulfonium hexafluoroantimonate salts in 50% by weight propylene carbonate, i.e. the cationic initiator. All of the FRI-1, FRI-2 and FRI-3 are free radical initiators. The energies used are found in Table 1 and wavelengths for imaging are found on page 36 and processes for the intended use of these compositions of Lawton are found in claims 13, 14 and 15. With respect to instant claims 10-11 and 14, the examiner notes with respect to the limit of "10-20% by weight of an acrylic material selected from aromatic acrylic material, cycloaliphatic acrylic material or combinations there of, the Examples of Lawton anticipate those wherein 7% of CHDM, i.e. 1, 4 - cyclohexane dimethanol diacrylate ester, reads on the choice of cycloaliphatic acrylic material. With respect to instant claims 1-9, 12-13, 15-20, Examples of Lawton anticipate those wherein 7% of CHDM, i.e. 1, 4 - cyclohexane dimethanol diacrylate ester, reads on the choice of cycloaliphatic acrylic material, all combinations of CHDM and Ebecryl of Lawton anticipate the instant invention and all compositions wherein Ebecryl is used by Lawton anticipate the instant invention.

8. Claims 1-20 are rejected under 35 U.S.C. 102(b) as being clearly anticipated by Lawton et al (US 2002/0106584). This application is a copy of the application for Lawton et al.

Art Unit: 1752

Continuity has not been granted to Lawton et al therefore all of Lawton et al was published a year before the filing date of this application making Lawton et al at this time a reference under 375 USC 102 (b).

9. The examiner's rough calculations for the epoxy eq/hydroxy eq ratio of Example VII of Lapin (WO 97/42549) given below: yield a ratio of epoxy equivalents to hydroxyl equivalents of at best less than 1.0. Thus, Lapin does not anticipate the instant compositions for this reason.

	Epoxy eq g/epoxy	oh eq g	weight		Epoxy	hydroxy
epon 1001F		525	525	23.7	0.045	0.045
ref		550	550	23.7	0.043	0.043
UVR 6128		190	0	14.2	0.075	0
		210	0	14.2	0.068	0
Photomer 3016		0	250	11.4	0	0.046
tone M100		0	344	14.2	0	0.041
SR 454		0	0	31.3	0	0.000
UVI 6974		0	0	2.4	0	0
Photoinitiator UVI-6974 (mixed triarylsulfonium hexafluoroantimonate salt in propylene carbonate)						
Irgacure 184		0	220	2.8	0	0.0127
mw approx c13h1603						
one OH	220					

low side	epoxy	0.120	eqv
high side			
epoxy	0.111	eqv	
low side	OH	0.145	eqv
High side	OH	0.143	eqv

Art Unit: 1752

10. The examiner's rough calculations for the epoxy eq/hydroxy eq ratio of Examples 10-12 of Sitzmann et al are given below. The epoxy equivalent to hydroxy equivalent ratio is too high to be part of the instant invention.

ex 10		ep	OH		
	ebda	32	0	0	
	tone 0301	5		100	0.0500
	1500	55	134		0.410ep
	ve-4010	8	0	0	
	I-651	2	0	0	
	cd 1010	2	0	0	
			EP/OH		8.21

ex 11		ep	OH		
	ebda	30	0	0	
	tone 0301	8		100	0.080
	1500	55	134		0.410ep
	ve-4010	7	0	0	
	I-651	2	0	0	
	cd 1010	0.6	0	0	
			EP/OH		5.13

ex 11		ep	OH		
	ebda	32	0	0	
	THF 650 diol	5		166.2	0.030
		5		179.5	0.028
	1500	55	134		0.410 ep
	ve-4010	7	0	0	
	I-651	2	0	0	
	cd 1010	0.6	0	0	
			EP/OH		13.64 High
			EP/OH		14.735 low

11. Claims 1-3, 5-6, 8-11, 13-15, and 17-20 are rejected under 35 U.S.C. 102(b) as being anticipated by Steinmann et al (5,476,748) as evidenced by TONE 0301 Polyol (Product Information). With respect to instant claims 1-3, 5-6, 8-11, 13-15, and 17-20, Example 1 of

Art Unit: 1752

Steinmann et al anticipates the instant composition, molded article and process wherein the ratio of epoxy equivalents to hydroxy equivalents is approximately 1.752.

The rough calculations done by this examiner are as follows to support this determination.

Example 1 from Steinmann et al	wt used	g/ep eq	g/oh eq	epox eq	HO eq
epoxy cyclohexyl cpd	64	134	0	0.478	
tone 0301	22	0	100		0.220
diglycidyl ether diacrylate of bisphenol A	12	0	250		0.048
Irgacure 184	1	0	220		0.005
UVI 6974	1	0	0		
Photoinitiator UVI-6974 (mixed triarylsulfonium hexafluoroantimonate salt in propylene carbonate)					
				0.478	0.273
			ratio		
	ratio of epox/HO		1.752		

TONE 0301 Polyol is used for the hydroxyl equivalent number.

12. Applicant's arguments filed December 19, 2005 have been fully considered but they are not persuasive.

Applicants argue:

The correction of continuity removes some rejections.

The examiner answers:

This has been addressed above.

Applicants argue:

With respect to the § 102(b) rejection in view of WO '300, the Examiner has asserted that the claims lack support in the parent applications. Applicants respectfully submit that the claims are entitled to the filing date of the parent application U.S. Ser. No. 09/113,271, filed Jul. 10, 1998, whether amended or not and that WO '300 is not prior art to either the previously pending claims or the claims as amended. Specifically, the amendments submitted herein for purposes of addressing other art cited below are not a representation that Applicants agree with the Examiner's assertion. Accordingly, as WO '300 is not prior art, Applicants respectfully request reconsideration and withdrawal of this rejection.

The examiner answers:

There is insufficient support in U.S. Ser. No. 09/113,271 for the instant claims. Thus, even if continuity is corrected by applicants the oldest effective filing date for these claims would be March 31, 2000. Thus, rejections under 35 USC 102 (a) would still be valid even if continuity was corrected to the oldest application listed. The new rejection is valid.

Applicants argue:

Steinmann et al do not teach the epoxy equivalent to hydroxy equivalent ratio limit newly entered into the instant claims. The species in that case will anticipate the genus. *In re Slayter*, 276 F.2d 408, 411, 125 USPQ 345, 347 (CCPA 1960); *In re Gosteli*, 872 F.2d 1008, 10 USPQ2d 1614 (Fed. Cir. 1989). "[W]hen, as by a recitation of ranges or otherwise, a claim covers several compositions, the claim is 'anticipated' if one of them is in the prior art." *Titanium Metals Corp. v. Banner*, 778 F.2d 775, 227 USPQ 773 (Fed. Cir. 1985) (citing *In re Petering*, 301 F.2d 676, 682, 133 USPQ 275, 280 (CCPA 1962)). The new rejection is properly made over Steinmann et al.

Art Unit: 1752

13. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Smith et al (4,173,476) teach in col. 5 when molding epoxy compounds that :

Although both mono-functional and poly-functional hydroxyl-containing materials provide desirable results in the compositions of the invention, use of the poly-functional hydroxyl-containing materials is highly preferred for a majority of applications, although the mono-functional hydroxyl-containing materials are particularly effective in providing low viscosity, solvent-free coating compositions. When using hydroxyl-containing organic materials having a functionality significantly less than 2 (e.g., 1 to 1.5), amounts greater than about 0.4 equivalent of hydroxyl per equivalent of epoxy tend to provide cured compositions which are generally low in internal strength and tensile strength and are susceptible to solvent attack, and consequently may be unsuitable for many applications. This tendency becomes increasingly more apparent with increasing equivalent weight of the hydroxyl-containing material. Accordingly, when using mono-functional hydroxy materials it is preferred that the equivalent weight thereof be no greater than about 250.

There is no mention of mixing acrylates in the compositions of Smith et al.

Lawton (5,707,780) teach the need to be aware of balance of hydroxyl to epoxide groups in dual cure stereolithographic compositions as to address initial green strength and humidity problems with epoxides.

14. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a).

Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37

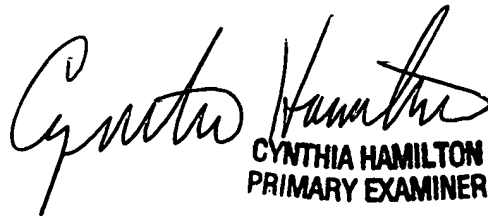
Art Unit: 1752

CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Cynthia Hamilton whose telephone number is 571-272-1331. The examiner can normally be reached on Monday through Friday 9:30 am to 5:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Cynthia H. Kelly can be reached on (571) 272-0729. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


**CYNTHIA HAMILTON
PRIMARY EXAMINER**

Cynthia Hamilton
Primary Examiner
Art Unit 1752

March 15, 2006